

REMARKS/ARGUMENTS

Claims 1-34 were pending in the present application. The present response amends claims 6 and 25, and adds new claim 35, leaving pending in the application claims 1-35. Reconsideration of the rejected claims and consideration of the newly presented claims is respectfully requested.

I. Objection to the Specification

The specification is objected to for containing various informalities. Applicants appreciate the Examiner's attention to detail, and have amended the specification accordingly. These amendments would be obvious in light of the specification and drawings, are supported by the specification, and do not add new matter. The changes are not intended to alter the scope of the claimed invention or be interpreted as a limitation on any equivalents thereof. Applicants respectfully request that the objection to the specification be withdrawn.

II. Objection to the Claims

Claims 6 and 25 are objected to as lacking proper antecedent basis. These claims have been amended accordingly, and as such should include proper antecedent basis for every term used therein. Applicants therefore respectfully request that the objection to the claims be withdrawn.

III. Rejection under 35 U.S.C. §102

Claims 1-7, 16-25, and 29-33 are rejected under 35 U.S.C. §102(e) as being anticipated by *Engelhard* (US 6,791,679). Applicants' claim 1 requires a method of measuring feature parameters in a microelectronic fabrication process, defined by:

- taking a first optical metrology measurement at a feature location on a sample after a first step in a fabrication process;
- determining first parameters for the feature location from the first optical metrology measurement;
- taking a second optical metrology measurement at the same feature location after a subsequent step in the fabrication process; and
- determining second parameters for the feature location based on the determined first parameters and the second optical metrology measurement

(emphasis added). Such limitations are not disclosed by *Engelhard*.

Engelhard discloses a system that uses a correlation between measurements to predict when a “profile measurement or parameter” will be “outside of the specified...range,” such that the previous process (here the application of a photoresist) can be (removed and) redone (col. 1, line 58-col. 2, line 6; col. 9, lines 14-22) if necessary. *Engelhard* specifically discloses develop inspect (DI) and final inspect (FI) phases, with measurements made on test wafers to determine a correlation between measurements during the DI phase and measurements during the FI phase (col. 5, lines 37-44; col. 6, lines 5-42). During production, each wafer is “inspected by an optical metrology device in a develop inspect (DI) phase,” (col. 8, lines 39-42) and the previously generated correlation is used with the DI measurements to obtain “predicted FI profile parameters” (col. 9, lines 6-21). A determination then can be made if the predicted profile values will be outside the range of acceptable FI profile values (col. 9, lines 14-22). If the predicted values are within the acceptable FI range, the processing continues then “the wafer is again inspected in a final inspect (FI) phase by the optical metrology device” (col. 9, lines 25-29). The DI parameters are not used to determine the actual FI parameters. The DI parameters are only used, along with the correlation, to predict whether the later-determined parameters are likely to be out of range.

Applicants’ claim 1, however, requires “determining second parameters for the feature location based on the determined first parameters and the second optical metrology measurement.” *Engelhard* predicts a set of subsequent parameters based on the first parameters and a correlation, not the second optical metrology measurement. *Engelhard* then determines the subsequent set of parameters based on a subsequent measurement but not the first set of parameters. *Englehard* therefore cannot anticipate Applicants’ claim 1, or dependent claims 2-7 and 16-19.

Applicants’ claim 20 requires in part that “the second metrology tool capable of receiving the first parameters from the first metrology tool and determining second parameters for the feature based on the first parameters and the second optical metrology measurement.” As discussed above, such a limitation is not disclosed by *Englehard*. As such, claim 20 and dependent claims 21-25 and 29-33 cannot be anticipated by *Englehard*.

Applicants therefore respectfully request that the rejection with respect to claims 1-7, 16-25, and 29-33 be withdrawn.

IV. Rejection under 35 U.S.C. §103

Claim 8 is rejected under 35 U.S.C. §103(a) as being obvious over *Englehard* in view of *Bruggeman* (US 6,054,710). Claim 8 depends from claim 1, which is not rendered obvious by *Englehard* for reasons including those discussed above. *Bruggeman* is cited as teaching the determination of “a three-dimensional characterization of the structure under test” (OA p. 6). Such teaching does not make up for the deficiencies in *Englehard* with respect to claim 1, as the references fail to teach or suggest, either alone or in combination, “determining second parameters for the feature location based on the determined first parameters and the second optical metrology measurement” as required by Applicants’ claim 1. As such, claim 1 and dependent claim 8 cannot be rendered obvious by *Englehard* and *Bruggeman*.

Claims 9-14, 26-28, and 34 are rejected under 35 U.S.C. §103(a) as being obvious over *Englehard* in view of *Piwonka-Corle* (US 5,608,526). Claims 9-14 depend from claim 1, and claims 26-28 and 34 depend from claim 20, which are not rendered obvious by *Englehard* for reasons including those discussed above. *Piwonka-Corle* is cited as teaching “focusing a broadband light source using a focusing mirror,” “using a polarizing element,” “using a range of UV wavelengths,” and “using a spectrometer” (OA p. 7). Even if it were obvious to combine *Piwonka-Corle* with *Englehard*, such teaching would not make up for the deficiencies in *Englehard* with respect to claims 1 and 20, as the references fail to teach or suggest, either alone or in combination, determining second parameters for the feature location based on the determined first parameters and the second optical metrology measurement as required by Applicants’ claims 1 and 20. As such, claims 1 and 20, and dependent claims 9-14, 26-28, and 34, cannot be rendered obvious by *Englehard* and *Piwonka-Corle*.

Claim 15 is rejected under 35 U.S.C. §103(a) as being obvious over *Englehard* in view of *Krishnan* (US 6,710,890). Claim 15 depends from claim 1, which is not rendered obvious by *Englehard* for reasons including those discussed above. *Krishnan* is cited as teaching the “a first optical sensor and a second optical sensor and calibrating the second sensor based on the first sensor and using both sensors to measure substrate thickness” (OA p. 8). Even if it were obvious to combine *Krishnan* with *Englehard*, such teaching would not make up for the deficiencies in *Englehard* with respect to claim 1, as the references fail to teach or suggest, either alone or in combination, “determining second parameters for the feature location based on the determined

first parameters and the second optical metrology measurement” as required by Applicants’ claim 1. As such, claim 1 and dependent claim 15 cannot be rendered obvious by *Englehard* and *Krishnan*.

Applicants therefore respectfully request that the rejection with respect to claims 8-15, 26-28, and 34 be withdrawn.

V. Amendment to the Claims

Unless otherwise specified, amendments to the claims are made for purposes of clarity, and are not intended to alter the scope of the claims or limit any equivalents thereof. The amendments are supported by the specification and do not add new matter to the specification.

VI. Newly Presented Claim

Claim 35 has been added to cover different aspects of the present invention. This claim is supported by the specification and does not add new matter. Applicants therefore respectfully request consideration of newly presented claim 35.

VII. Conclusion

In view of the above, it is respectfully submitted that the application is now in condition for allowance. Reconsideration of the pending claims and a notice of allowance is respectfully requested.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-1703, under Order No. TTI-25010. **A duplicate copy of the transmittal cover sheet attached to this Response to Office Action Mailed June 7, 2005, is provided herewith.**

Respectfully submitted,

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